



January 20, 2015

**Mr. Eric Foertch, Director EHS**  
State University of New York at Oswego  
111 Lee Hall  
7060 Route 104  
Oswego, New York 13216-3599

RE: Shoreline Assessment (draft)  
FILE: 8705/60224

Dear Mr. Foertch:

O'Brien & Gere is pleased to present this report for natural resource assessment services associated with evaluation of the Lake Ontario shoreline at the State University of New York (SUNY) Oswego Campus. The assessment was performed in accordance with our October 31, 2014 proposal and subsequent discussions regarding potential development for the lake-front property owned by SUNY Oswego.

The lake-front property owned by SUNY Oswego includes approximately 5,700 ft. of shoreline (1.1 miles). Figure 1 presents an aerial photograph of the campus area including the shoreline. Portions of the shoreline banks that provide the transition from lakeshore to upland campus property are dominated by scrub/shrub and forested vegetative communities. The primary objective of the shoreline assessment was to identify areas where the vegetation of the banks and shoreline could be managed to provide an increased viewshed of the lake for campus residents, staff, and visitors.

A site visit was performed on November 24, 2014 to evaluate the shoreline and meet with you to discuss the overall project objectives. Photographs collected during the site visit are included as Attachment 1. Presented below are sections which discuss the shoreline physical characteristics, regulatory status of shoreline habitats, recommended strategies to enhance the viewshed, minimize bank erosion and increase public access to the shoreline, and considerations for future property enhancement projects.

## 1. GENERAL SHORELINE INFORMATION

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The physical characteristics of the aquatic component of the lake-front property owned by SUNY Oswego is described and classified in this section.

### 1.1 Lakeshore Habitat

The overall physical characteristics of portions of the lake shoreline observed as part of this study can generally be described as gravel and cobble shoreline that includes areas dominated by bedrock and drift deposits such as dead vegetative matter. The United States Fish and Wildlife Service (USFWS) document *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.* 1979) offers one method of classifying lakeshore areas. The USFWS utilizes the Cowardin classification scheme for its National Wetland Inventory (NWI) mapping project. In accordance with Cowardin *et al.* (1979), freshwater lakeshore areas can generally be classified as Lacustrine systems, as described below:

- » Lacustrine systems are habitats that are situated in topographic depressions, have less than 30% areal coverage of trees, shrubs, or persistent emergents, and are typically greater than 20 acres in size. The Lacustrine System can be further divided into two subsystems: littoral or limnetic. The littoral subsystem is described as habitat that extends from the shoreward boundary of a lacustrine system to a depth of 6.6 feet below low water or to a maximum extent of nonpersistent emergents. The limnetic subsystem is described as all deepwater (beyond 6.6 feet) habitats within the lacustrine system.

Based on the NWI mapping available for the Oswego, NY region ([www.fws.gov/wetlands/Data/Mapper.html](http://www.fws.gov/wetlands/Data/Mapper.html)), the Lake Ontario shoreline is predominantly classified as *Lacustrine, littoral* (L2) habitat. Based on the site reconnaissance performed for this project, the natural shoreline areas observed in the campus vicinity would be further classified as Lacustrine-littoral, Unconsolidated Bottom (L2UB) and Rocky Shore (L2RS). Unconsolidated Bottom habitats are characterized by at least 25% cover of particles smaller than stones, less than 30% cover of vegetation and the lack of large stable surfaces for plant and animal attachment. Rocky shore habitats include areas characterized by bedrock, stones or boulders which singly or in combination have an areal cover of 75% or more and an areal coverage by vegetation of less than 30%.

A second aquatic habitat type observed along the shoreline during the site reconnaissance was located where the outlet of Glimmerglass Lagoon discharges to Lake Ontario. Figure 1 presents the location of the Outlet Stream relative to the shoreline. At the time of the reconnaissance, the Outlet Stream exhibited medium flow with a surface water depth of four to eight inches which flowed over approximately 20 feet of the rocky shoreline before ultimately discharging to Lake Ontario. Upstream of the shoreline, the riparian area of the Outlet Stream consisted of an emergent wetland with some mature trees to the east and west as the wetland transitioned to upland. The Outlet Stream and adjacent wetland habitat were not identified on the NWI mapping.

Each habitat described above has unique physical characteristics, often providing important habitat essential to many species of flora and fauna. Exposure to wave and current action, combined with temperature, and light penetration, determine the composition and abundance of organisms in these areas. Most animals of the lacustrine habitat types live within the substrate and provide a food source not found in other habitat types. These areas may also perform important flood protection and sediment/shoreline stabilization functions.

## 1.2 Shoreline and Bank Vegetation

A qualitative survey of the vegetative communities present along the campus shoreline was performed during the site reconnaissance. Excepting green algae colonies on some of the bedrock outcroppings, shoreline vegetation was generally absent. Vegetative growth began at the toe of the bank slope where the rocky shoreline transitioned to upland habitat containing a more favorable substrate for vegetative growth. Representative photographs of the shoreline and bank vegetation are presented in Attachment 1.

The bank represents a significant topographic rise from the shoreline to the level ground of the campus property. The bank vegetation consisted of a variety of herbaceous species, shrubs and pockets of mature trees interspersed throughout the bank slope and top. Dominant shrub species observed include: red-osier dogwood (*Cornus sericea*), grey dogwood (*Cornus racemosa*), common buckthorn (*Rhamnus cathartica*), staghorn sumac (*Rhus typhina*), Russian olive (*Elaeagnus angustifolia*), silky dogwood (*Cornus amomum*), rose (*Rosa spp.*). Tree species observed included: eastern cottonwood (*Populus deltoides*), white pine (*Pinus strobus*), scotch pine (*Pinus sylvestris*), white birch (*Betula papyrifera*), Norway maple (*Acer platanoides*), quaking aspen (*Populus tremuloides*) and crab apple (*Malus spp.*).

At the eastern end of the property, large trees are present in close proximity to steep shoreline banks. The banks at the western end of the campus contain abundant common buckthorn and other shrub vegetation. While this vegetation impacts the shoreline viewshed, it provides significant stabilization of the soils, minimizing bank erosion. Despite the harsh nature of the Lake Ontario shoreline (*i.e.*, erosive forces of wind, wave, and ice), the bank areas observed appear rather stable. Observed localized erosion appears to be limited primarily to the locations of stormwater outfalls and/or informal pedestrian access points.

## 1.3 Outfall Structures

Four outfall structures, discharging stormwater to the Lake Ontario shoreline were observed during the site reconnaissance. Photographs of the outfalls are included in Attachment 1. Information concerning the minimization of erosion associated with the outfalls is presented in Section 4, below.

## 2. VIEWSHED IMPROVEMENT STRATEGY

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As previously discussed, one primary objective of the University is to identify potential means to increase the quality and 'quantity' of the views of the shoreline and lake for the inhabitants of buildings near the shoreline and those walking/driving along the shoreline. Presented in this section is a proposed strategy to meet this objective.

Two viewshed improvement areas have been identified along the eastern and western extremes of the shoreline adjacent to campus. Figure 1 presents the approximate limits of the viewshed improvement areas. The eastern location begins at the eastern end of the property and extends westward for approximately 2,200 feet. Vegetative clearing in this area would consist of the removal of select large trees located on the top and slope of the bank. Taller shrubs that inhibit clear lake views will also be removed.

The western viewshed improvement area extends approximately 1,000 feet along the western shoreline parallel to Randolph Road. Vegetation in this area consists primarily of large shrubs that can be cut and or trimmed to provide exceptional views of the lake for walkers and drivers utilizing Randolph Road. It is critical to employ best management practices while performing vegetative clearing to avoid erosion of the bank and shoreline habitats. In most instances it will likely be required to leave the root mass of larger plants in place to minimize disturbance of the substrate. Additional details concerning the vegetative clearing are presented below.

### 2.1 Vegetative Clearing

- Prior to vegetative clearing, O'Brien & Gere will walk the shoreline with SUNY Oswego personnel to field identify the proposed limits of vegetative clearing and individual specimens to be preserved. Additionally locations where treed islands are to remain and educational signage is to be installed will be field-identified with a Global Positioning System (GPS) unit.
- Field mark areas where woody vegetation is to remain to provide shoreline variety, both aesthetically and ecologically. Trees and shrubs to remain within these "islands" shall be selected with preference given to native species and viewshed enhancement.
- Enlist a SUNY Oswego class or O'Brien & Gere biologists to harvest a minimum of 300 dogwood and willow live stakes for future planting in selective areas after clearing is completed. Stakes should be harvested after leaf drop in the fall of 2015 prior to vegetative clearing operations. An attempt to harvest equal numbers of each species should be made to maintain variety but is not imperative. Proper storage of the live stakes will be discussed with SUNY Oswego representatives following the harvesting efforts.
- Cut standing woody plants at 4-inches above ground surface in areas specified on Figure 1. Where practicable, (such as the western improvement area) utilize an excavator mounted brush hog or 'boom mower' (see following link: <http://www.alamo-industrial.com/Products/ProductView.asp?ProductID=70> to extend as far down bank as practicable. Material that cannot be cut in this way (likely along much of the eastern improvement area) shall be manually cut with chain saws and hand tools. No grubbing of stumps or operation of heavy equipment shall occur on the banks to minimize disruption of soil profile and resultant erosion. This approach will maintain the viability of the root systems and allow for resprouting of vegetation. While this may necessitate future vegetative clearing, it maintains the stability of the shoreline banks, thereby avoiding costly engineered erosion control systems (*e.g.*, large rip rapped crib walls) that may be needed if wholesale vegetative clearing and grubbing is pursued. The preferred season for this activity is fall (in part, to minimize impacts to flowering weeds).
- The stored live stakes are to be installed after vegetative clearing in areas recommended by O'Brien & Gere. Planted areas may include those areas that are damaged by clearing efforts, in areas that were dominated by non-native invasive species, or in otherwise sparsely vegetated areas that would benefit from the erosion control provided by shrub roots.

- After installation of live stakes, apply the vegetative seed mix (to be specified by O'Brien & Gere)
- Vegetative clearing and stabilization shall be completed prior to any proposed improvements above the top of bank to minimize potential impacts.

The strategy to improve the shoreline viewshed explained above has been designed to provide the following secondary objectives:

- Maintain a vigorous vegetative community that is dominated by native species that are suited to shoreline conditions and have extensive root systems to maximize soil stabilization and minimize erosion
- Improve aesthetics by selecting native flowering species with various flowering times and colors
- Reduce the prevalence of non-native, invasive species that are out-competing native species (see Section 3.2).

## 2.2 Invasive Species Management

To increase viewshed quality and local ecological function of the bank habitats, non-native, invasive species (*e.g.*, common buckthorn, Japanese knotweed, Norway maple) identified within the eastern and western viewshed improvement areas should be cleared. Locations where "visual breaks" are desired to maintain viewshed variability shall be field-identified by O'Brien & Gere within areas of native vegetation. Areas dominated by native vegetation shall be allowed to revegetate naturally.

Following clearing, areas that are currently dominated by invasive species should be planted with the live stakes and a vegetative seed mix can be applied. This will improve the ecological habitat value of the area while also opening up additional viewshed along the shoreline. To avoid potential impacts to summer Indiana bat habitat, the recommended timeframe for the clearing of large (*i.e.*, larger than 3-inch diameter at breast height) woody vegetation is, as described above, between October 1 to March 31. Planting of live stakes should be performed after clearing is complete, after leaf drop in the fall, and before leaf-out in the spring. Disturbance of the substrate should be minimized. Application of the seed mix should be performed after snow melt in the spring.

## 2.3 Conceptual Trail Enhancements

The top of bank area along nearly the entire campus shoreline provides a panoramic view of Lake Ontario and is utilized by University students and faculty for hiking, nature viewing and summer relaxation. During our site reconnaissance, we discussed the installation of additional educational signage, benches, and other proposed appurtenances to enhance the natural experience provided by the trail. In particular, we discussed increasing public access to the western viewshed improvement area. The following concepts are provided to guide the potential design of an enhanced natural trail along the shoreline adjacent to Rudolph Road:

- Installation of an ADA compliant path so that disabled faculty, staff, and students are incorporated into the shoreline enhancement project. Additional considerations to include:
  - » Adequate separation should be maintained between this path and the informal path within the eastern viewshed improvement area so that disabled users are not encouraged to continue onto the informal path where safety could be compromised.
  - » Preference should be given to using porous materials to the extent practicable so that permanent stormwater management of runoff from the surface is not required. If this proves infeasible, the path would need to be designed with an adjacent stormwater management facility. Alternatively, the University could incorporate the square footage of the path footprint that requires treatment into the design of stormwater management facilities that are proposed elsewhere on-campus, as a "swap" of stormwater treatment credit.

- » A minimum of one educational kiosk shall be located within this section. The photograph below illustrates an educational kiosk that was installed along a pedestrian trail as part of O'Brien & Gere's design of a wetland mitigation area on the campus of University at Albany.
- Recommended timeframe = June through August



It is recommended that the trail in the eastern viewshed improvement area remain unimproved as it provides a natural pedestrian experience that blends well with the shoreline ecology. Benches and educational kiosks could be added along this trail in strategic areas to add to the experience without encouraging heavy traffic. The condition of the trail should be monitored in the future so that if it exhibit signs of erosion, improvements to the trail can be considered.

### 3. REGULATORY SUMMARY

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Based on the tasks proposed herein and our experience in site development, O'Brien & Gere has prepared a listing (see Table 1) of potential regulatory policies and/or approvals that may be required if the existing resources within the shoreline area and other potentially jurisdictional habitats on campus are impacted by site development.

The attached Table 1 has been developed for reference purposes. It should be noted that the majority of these regulations may not be relevant to the viewshed improvement strategy as proposed and discussed in Section 3, below. However, as SUNY Oswego advances their campus-wide development plans, this table can be used to assist in the administrative process, such as through identification of which permits are required for a particular project.

The primary regulatory issues associated with the viewshed improvement strategy include consistency with the City of Oswego Local Waterfront Revitalization Program, Coastal Erosion Hazard Area Law and the NYS Coastal Erosion Hazard Area policy (6 NYCRR Part 505). The proposed viewshed improvement actions appear consistent with these programs. Generally, consistency is obtained by following best management practices to minimize erosion of the banks and shoreline while performing vegetative cutting activities.

Additionally, consultation with the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts to protected floral and faunal species (*e.g.*, Indiana bat) should be considered. Impacts to Indiana bat summer roosting and foraging habitat can be avoided by limiting tree cutting to the winter months (October 1 through March 31). Additional research is necessary to identify the potential presence of other protected species on campus property. This research (information requests submitted to the USFWS and the Natural Heritage Program (NHP)) can be performed prior to performance of the viewshed improvements.

## 4. SHORELINE EROSION ISSUES

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### 4.1 Swales

The swales observed (*e.g.*, Photo 8 of Attachment 1) are likely to degrade over time due to continued use by pedestrians and/or erosion during significant runoff events. In an effort to avoid unsightly discouragement features (*e.g.*, gates, obstacles) and/or encourage use of alternative, potentially less safe access points, it is recommended that these areas be stabilized with the following:

- Placement of erosion control fabric that is toed-in on all sides a minimum of 1-foot beyond the limits of existing erosion
- Placement of a minimum of 6-inches of washed stone over the fabric
- In areas where the swale location is adjacent to existing stormwater outfalls, the University should incorporate additional grading and stabilization measures of these areas into the design of the outfalls
- If there are specific access points that the University wants to discourage from future use, they could be identified with the GPS and they can be blocked by strategic placement of vegetative plantings or educational kiosks
- Recommended timeframe = May through September

### 4.2 Outfall Structures

It is assumed that the existing stormwater outfalls are sized appropriately for the design flows that they convey. Therefore, the University should replace failing outfalls with new reinforced facilities while maintaining existing invert elevations.

- Replacement of outfalls and placement of riprap outlet protection should occur during dry months when flows are minimal. The upstream inlet should be blocked and bypass pumps and hoses placed to convey flow around the rock area until facility installation is completed.
- The area below the outfall should be stabilized with placement of erosion control fabric and appropriately sized riprap
- If desired, live stakes could be installed in gaps within the riprap to further stabilize the outlet and increase the ecological function of the facility by providing shade against thermal impacts and shrub habitat
- Recommended timeframe = July through August

## 5. PATH FORWARD

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Following your review of the information discussed herein, we propose to meet with SUNY Oswego representatives to verify the schedule and scope of the next tasks to be performed for the viewshed enhancement project. The field demarcation of vegetative clearing areas can occur as early as the spring of 2015.

During our November site visit, we briefly discussed a group of ideas concerning future developments and/or habitat management on the university properties. Listed below are some of the items discussed.

- Information presented herein and collected as part of future field efforts can be used to develop a comprehensive Shoreline Enhancement Plan to maximize the ecological and aesthetic function and value of the shoreline in a manner that is consistent with the short and long term goals of the university and/or development of shoreline areas for recreational use. Collaboration with representatives from the biology

department and Rice Creek Field Station at could be performed to incorporate their ideas concerning enhancement of the shoreline and other areas of the property.

- Glimmerglass Lagoon: some ideas discussed during our site reconnaissance included the construction of a canoe launch to be used for course work and/or recreation; evaluation of control methods for the periodic algal blooms that occur in the lagoon; construction of shoreline trail with educational kiosks surrounding the lagoon (potential tie into the lake shoreline trail); maintenance of the Outlet stream to allow for management of lagoon water levels; and construction of a walking bridge over the Outlet Stream to allow unimpeded trail hiking over the stream.
- Campus-wide survey of jurisdictional habitats (*i.e.*, wetlands, streams): perform an assessment of habitats that may be regulated by NYSDEC, USACE or local agencies. To save costs, an initial qualitative assessment would be performed utilizing a GPS unit to map "suspected" wetlands. Therefore, in your master planning efforts, you could refer to the resulting map to identify areas that should be avoided. If there are areas that the university plans to develop, you would be aware during your planning process that there could be regulatory permitting hurdles to navigate. Quantitative delineation efforts could then be performed under a separate scope of work on areas targeted for development. Note: annual monitoring efforts required for the mitigation wetland on the university's property could be included in future wetland planning efforts.

As we move forward with the shoreline enhancement efforts, O'Brien & Gere would be happy to discuss these and other potential natural resource management opportunities with SUNY Oswego.

We appreciate the opportunity to provide natural resource assessment services to SUNY Oswego. We look forward to continuing our relationship and assisting SUNY Oswego with the viewshed improvement strategy and other future environmental projects. If you should have any questions or comments regarding the information presented herein, please feel free to contact me or Kyle Buelow at 315-956-6100.

Very truly yours,

**O'BRIEN & GERE ENGINEERS, INC.**



Stephen Mooney  
Managing Scientist

cc: Kyle Buelow, CPESC/CPSWQ (O'Brien & Gere)  
Robert Neimeier (O'Brien & Gere)

attachments

Table 1. Potential Regulations for Coastline Revitalization Project(s) at SUNY Oswego

		Activity	Agency
<b>FEDERAL</b>			
1	Section 404 of the Clean Water Act (Joint Application)	Work within waters of the United States (including non-isolated wetlands; delineation required for application). Nationwide Permits vs. Project-Specific (Individual) Permit.	USACE
2	Section 10 of the Rivers & Harbors Act of 1899 (Joint Application)	Work within navigable waters of the United States. Nationwide Permits vs. Project-Specific (Individual) Permit.	USACE
<b>STATE</b>			
3	Section 401 of the Clean Water Act (401 Water Quality Certification) (Joint Application)	Certification is used to ensure that federal agencies issuing permits or carrying out direct actions, which may result in a discharge to waters of the United States do not violate New York State’s water quality standards or impair designated uses.	NYSDEC
4	Protection of Waters (6 NYCRR Part 608; Article 15, Title 5 of the ECL) (Joint Application)	Work within protected water bodies (bed and banks)	NYSDEC
5	Tidal and Freshwater Wetlands (6 NYCRR Parts 663 – 664; Articles 24 and 25 of the ECL) (Joint Application)	Activities within State-regulated wetlands and buffer areas (mapped by NYSDEC). May include development of mitigation plan.	NYSDEC
6	Coastal Erosion Hazard Area (6 NYCRR Part 505; Article 34 of ECL) (Joint Application)	Development or other actions in erosion hazard areas should be undertaken in a manner that minimizes damage to natural protective features, and prevents the exacerbation of erosion hazards. NPFAs that might be applicable include beach and bluff areas. Any planned regulated activity within designated coastal erosion hazard area requires a Coastal Erosion Management Permit.  City of Oswego is a Certified CEHA community with applicable local policy (see 22 below).	NYSDEC
7	SPDES General Permit for Storm Water Discharges from Construction Activity (GP-0-10-001)	Storm water discharges from construction phase activities disturbing one-acre or greater. Includes preparation and implementation of SWPPP.	NYSDEC
8	SPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (GP-0-11-009)	Storm water discharges from certain industrial activities. Includes preparation and implementation of SWPPP.	NYSDEC
	or SPDES Permit for the Discharge of Industrial Wastewater (and Stormwater) (6 NYCRR Part 750)	Combined SPDES Permit (process wastewater from pre-treatment facility and site storm water discharges).	NYSDEC
9	Federal Coastal Zone Management Act & NYS Coastal Management Program (6 NYCRR Part 600) (Federal or State Coastal Consistency Assessment Form)	Any person who is considering an activity in, or affecting, the State’s coastal area that requires approval from a federal, State or local agency (in a city, town, or village with an adopted LWRP) may be required to comply with certain consistency requirements or have their action subject to state agency consistency requirements.	NYSDOS and/or municipality
10	Federal & State Preservation Laws (36 CFR 800; 9 NYCRR Part 428; Sections 3.09 and 14.09 of the NYS Parks, Recreation and Historic Preservation Law)	Activities affecting historic, architectural, archaeological and cultural resources. Involved State agency determines need for consultation with SHPO. May require completion of Project Review Form (project description and location, photographs, and documentation of prior disturbance) and/or cultural resource investigation. Goal is to obtain “No Effect” letter from SHPO.	NYSOPRHP – Field Services Bureau (SHPO)
11	SEQRA (Article 8 of the ECL; 6 NYCRR Part 617)	Environmental impact assessment. Preparation of Short or Full EAF. May also involve “Environmental Justice”-related public participation activities. Federal funding/permits may require NEPA review. Type 1 activities that would require an assessment include zoning changes and physical alteration of > 10 acres. Type 2 activities do not require a review.	Lead & Involved Agencies (coordinated vs. uncoordinated review)
12	ESA (Section 7 of ESA)	Consultation process to identify whether a Federally- or State-listed, proposed or candidate species and/or critical habitat may occur within the proposed project area.	USFWS NYSDEC NHP



**Table 1. Potential Regulations for Coastline Revitalization Project(s) at SUNY Oswego**

13	Notice of Petition for Grant or Easement for Underwater Lands	Installation of cables, conduits, pipelines and other facilities in State owned lands underwater.	NYSOGS
14	Floodplain Development Permit	Work within 100-year floodplain. Approval process is typically delegated to local floodplain administrator.	Municipality (typical)
15	Waterfront Revitalization and Coastal Resources Act (Article 42, Executive Law)	Coordinated and comprehensive policy for preservation, enhancement, protection, development and use of state’s coastal (and inland) waterway resources. Insure proper balance between natural resources and the need to accommodate population growth and economic development	NYSDOS NYSDEC
16	Local Waterfront Revitalization Plans and Coastal Rehabilitation (Title 11, Article 54 of ECL)	Preserve, enhance, protect and sustainably use natural and man-made resources of the state’s coastal area by implementing land and water use policies. Voluntary program established for local governments.	NYSDOS NYSDEC
17	Fish and Wildlife Law (Articles 11 and 13 of ECL)	Management practices will preserve and develop the fish and wildlife resources of the state and improve access for recreational purposes by the people of the state.	NYSDEC
18	Protection of Natural and Man-made Beauty (Article 49 of ECL)	Preserve and enhance the natural and man-made beauty of the state – promotion of aesthetic considerations in location, design, construction and maintenance of state lands.	NYSDEC
19	NYS Ocean and Great Lakes Ecosystem Conservation Act (Article 14 of ECL)	Conserve, maintain and restore coastal ecosystems so they are healthy, productive and resilient. Activities/uses of coastal ecosystem must be sustainable, maintain ecological health and integrity, make decisions informed by best science available, apply caution when risks are uncertain and include broad public participation in planning and decision making.	NYSDEC
<b>LOCAL (MUNICIPAL)</b>			
20	Rezone	Rezone to allow proposed land use (if necessary)	Municipal Board (typical)
21	Site Plan Approval	Approval of site modifications. (May not be necessary if no major site modifications [i.e., Building Permit only] – coordinate with municipal Code Enforcement Officer to identify process).	Municipal Planning Board (typical)
22	City of Oswego Coastal Erosion Hazard Area Law	Regulated land use and development activities in erosion hazard areas of the City must minimize/prevent damage or destruction to man-made property, natural protective features, or natural resources in areas subject to serious erosion. Beach and bluff areas may be applicable. Northeast portion of SUNY Oswego campus, within the City of Oswego boundary, may be subject to regulation(s) <sup>1</sup> .	Municipal (typical)
23	City of Oswego Local Waterfront Revitalization	Comprehensive land and water use plan for the natural, public and developed waterfront resources along Oswego River and Lake Ontario. Large portion of the SUNY Oswego campus is found within the City of Oswego LWRP boundary.	Municipal (typical)

Source: O’Brien and Gere

**Notes/Assumptions**

- Coastal Hazard Areas Map for the City of Oswego available in the City Engineers office –  
Bob Johnson (315) 342-8153

**Acronyms**

CFR – Code of Federal Regulations

EAF – Environmental Assessment Form

ECL – Environmental Conservation Law

EIS – Environmental Impact Statement

ESA – Endangered Species Act

GP – General Permit

LWRP - Local Waterfront Revitalization Plan

MS4 – Municipal Separate Storm Sewer Systems

NEPA – National Environmental Policy Act

NHP – Natural Heritage Program

NPFA – Natural Protective Feature Areas

NYCRR – New York Codes, Rules and Regulations

NYS – New York State

NYSDEC – New York State Department of Environmental Conservation

NYSDOS – New York State Department of State

NYSOGS – New York State Office of General Services

NYSOPRHP – New York State Office of Parks, Recreation and Historic Preservation

SEQRA – State Environmental Quality Review Act

SHPO – State Historic Preservation Office

SPDES – State Pollutant Discharge Elimination System

SWPPP – Storm Water Pollution Prevention Plan

USACE – United States Army Corps of Engineers





USFWS – United States Fish & Wildlife Service



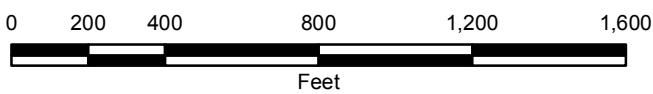
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**LEGEND**

-  APPROXIMATE EXTENT OF SHORELINE (~5700 ft)
-  FULL CUT TO INCREASE VIEWSHED (~1080 ft)
-  SELECT CUTTING FOR VIEWSHED QUALITY (~2215 ft)
-  SUNY OSWEGO PROPERTY

**SUNY OSWEGO  
OSWEGO, NEW YORK**



**SUNY OSWEGO  
SHORELINE ASSESSMENT**

JANUARY 2015  
8705.60224





**Photo 1.** Looking west along shoreline (rocky shore-typical).  
November 24, 2014



**Photo 2.** Looking southeast from shoreline at shrub vegetation along bank (typical). Eastern outfall pipe in center of photo.  
November 24, 2014



**Photo 3.** Looking south from shoreline at damaged central-eastern outfall.  
November 24, 2014



**Photo 4.** Looking west at informal walking path along shoreline (typical).  
November 24, 2014



**Photo 5.** Looking southwest from shoreline at central-western outfall.  
November 24, 2014



**Photo 6.** Looking south from shoreline at damaged western outfall.  
November 24, 2014



**Photo 7.** Looking northwest at western viewshed opportunity along Rudolph Road.  
November 24, 2014



**Photo 8.** Erosion swale (typical) along western bank.  
November 24, 2014